

WHAT IS CLAIMED IS:

1. An audio system having reduced clipping effects, comprising:
an audio source producing left and right channel input signals; and
drive circuitry coupled to said left and right channel input signals and producing a left
channel output signal, a right channel output signal, and a common mode output
signal that are each dependent upon a combination of said left and said right
channel input signals so that clipping effects are reduced.
2. The audio system of claim 1, wherein said left channel output signal and said right
channel output signal are dependent upon feedback from said common mode output signal.
3. The audio system of claim 2, further comprising three-wire stereo headphones coupled to
said drive circuitry.
4. The audio system of claim 3, wherein said audio system is a portable audio system.
5. The audio system of claim 2, wherein said left and right channel input signals from said
audio source are digital signals.
6. The audio system of claim 5, wherein said drive circuitry comprises a first amplifier
driving said left channel output signal, a second amplifier driving said right channel output
signal, and a third amplifier driving said common mode output signal.
7. The audio system of claim 6, wherein said drive circuitry further comprises a first and a
second digital-to-analog converters coupled to said digital left and right channel input signals,
and wherein said first, second and third amplifiers receive analog left and right channel input
signals from said first and second digital-to-analog converters.

1 8. The audio system of claim 5, wherein said drive circuitry comprises a left channel digital
2 processor providing said left channel output signal, a right channel digital processor providing
3 said right channel output signal, and a common mode digital processor providing said common
4 mode output signal.

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6 9. The audio system of claim 8, further comprising:
7 a first digital-to-analog converter and a first amplifier coupled to said left channel digital
8 processor to drive said left channel output signal;
9 a second digital-to-analog converter and a second amplifier coupled to said right channel
10 digital processor to drive said right channel output signal; and
11 a third digital-to-analog converter and a third amplifier coupled to said common mode
12 digital processor to drive said common mode output signal.

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14 10. A quasi-differential amplifier having reduced clipping effects, comprising:
15 a first and a second analog input signals; and
16 a plurality of amplifiers receiving said first and said second analog input signals and
17 producing a first output signal, a second output signal, and a common mode
18 output signal that are each dependent upon a combination of said first and said
19 second analog input signals so that clipping effects are reduced.

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21 11. The quasi-differential amplifier of claim 10, wherein said first and second output signals
22 are dependent upon feedback from said common mode output signal.

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24 12. The quasi-differential amplifier of claim 11, wherein said plurality of amplifiers include a
25 first amplifier to drive said first output signal, a second amplifier to drive said second output
26 signal, and a third amplifier to drive said common mode output signal.

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28 13. The quasi-differential amplifier of claim 12, wherein an output of said third amplifier is
29 coupled as an input to said first and said second amplifiers.

1 14. The quasi-differential amplifier of claim 11, wherein said first and second analog input
2 signals are differential signals and said plurality of amplifiers provide single-ended output
3 signals.

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5 15. The quasi-differential amplifier of claim 11, wherein said first and second analog input
6 signals comprise left and right channel audio input signals and said first and second output
7 signals are left and right channel audio output signals.

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9 16. The quasi-differential amplifier of claim 15, wherein said left channel output signal, said
10 right channel output signal, and said common mode output signal are capable of driving three-
11 wire stereo headphones.

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13 17. A drive circuit receiving a first and a second input signals and driving a first output
14 signal, a second output signal, and a common mode output signal that are each dependent upon a
15 combination of said first and second input signals so that clipping effects are reduced.

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17 18. The drive circuit of claim 17, wherein said first and second output signals are dependent
18 upon feedback from said common mode output signal.

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20 19. The drive circuit of claim 18, comprising a first amplifier to drive said first output signal,
21 a second amplifier to drive said second output signal, and a third amplifier to drive said common
22 mode output signal

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24 20. The drive circuit of claim 19, wherein said first and second input signals comprise right
25 and left channel audio input signals.

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27 21. The drive circuit of claim 20, wherein said left and right channel input signals comprise
28 digital signals.

1 22. The drive circuit of claim 21, further comprising a first digital-to-analog converter
2 coupled to said left channel input signal and a second digital-to-analog converter coupled to said
3 right channel input signal, and wherein said first, second and third amplifiers receive analog left
4 and right channel input signals from said first and second digital-to-analog converters.
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6 23. The drive circuit of claim 21, further comprising a left channel digital processor
7 providing said left channel output signal, a right channel digital processor providing said right
8 channel output signal, and a common mode digital processor providing said common mode
9 output signal.
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11 24. The drive circuit of claim 23, further comprising:
12 a first digital-to-analog converter and said first amplifier coupled to said left channel
13 digital processor to drive said left channel output signal;
14 a second digital-to-analog converter and said second amplifier coupled to said right
15 channel digital processor to drive said right channel output signal; and
16 a third digital-to-analog converter and third amplifier coupled to said common mode
17 digital processor to drive said common mode output signal.
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19 25. A method for driving multiple outputs with a quasi-differential signal to reduce clipping
20 effects, comprising:
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22 receiving a first and a second input signals; and
23 producing a first output signal, a second output signals, and a common mode output
24 signal that are each dependent upon a combination of said first and second input
25 signals so that clipping effects are reduced.
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27 26. The method of claim 25, further comprising providing said common mode output signal
28 as feedback to said first and second output signals such that said first and second output signals
29 are dependent upon feedback from said common mode output signal.

1 27. The method of claim 25, wherein said first and second input signals comprise a left and
2 right channel audio input signals.

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4 28. The method of claim 27, wherein said audio input signals are digital signals and further
5 comprising converting said digital audio input signals into analog audio input signals prior to
6 said producing step.

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8 29. The method of claim 27, wherein said first output signal, said second output signal and
9 said common mode signals are digital signals and further comprising converting said digital
10 output signals into analog output signals after said producing steps.

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12 30. The method of claim 27, further comprising utilizing said left channel output signal, said
13 right channel output signal, and said common mode output signal to drive three-wire stereo
14 headphones
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